

Appl. No. 10/007,186
Amdt. Dated: March 10, 2005
Office Action Dated: December 13, 2004

• • REMARKS/ ARGUMENTS • •

The Official Action of December 13, 2004 has been thoroughly studied. Accordingly the changes presented herein for the claims, considered together with the following remarks, are believed to be sufficient to place the application into condition for allowance.

By the present amendment, independent claim 1 has been changed to recite that the step of leaving the plant seed in a highly watery condition involves immersing the plant seed in water at a temperature of from 0 °C to 15 °C, and that the step of drying the plant seed the dark place involves a sufficiently dark environment to prevent exposure of the plant seed to an amount of light that is sufficient to cause the plant seed to germinate. These changes incorporate the limitations from claims 2 and 3 which have accordingly been canceled.

New claim 4 has been added which is similar to claim 1, but which recites that the step of leaving the plant seed in a highly watery condition involves exposing the plant seed to an environment having a relative humidity of about 100% and a temperature of from 0 °C to 15 °C.

The changes for the claims are supported on page 4, lines 1-8 and page 5, lines 6-10 of the original specification.

Entry of the changes to the claims is respectfully requested.

Claims 1 and 4 are pending in this application.

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On page 2 of the Office Action the Examiner rejected claims 1-3 under 35 U.S.C. §112, first paragraph. Under this rejection the Examiner has taken the position that "applicant has not established if all or only some seeds, and if so which, plants tend to suffer from defective rosette formation." The Examiner requested clarification.

In the last full paragraph on page 3 it is stated that:

A plant seed, to which the method of preventing defective germination or rosette formation of a plant seed according to the present invention is applied, is a plant seed, which tends to suffer from defective germination or rosette formation during growth thereof, such as a seed of Eustoma russellianum, seed starches, and sweet pea.

More generally, as disclosed, the method of the present invention can be used to carry out vernalization on seeds that would otherwise suffer from defective germination or rosette formation if not properly treated.

From the examples provided by applicant, those skilled in the art would readily recognize the types of seeds to which the present invention is applicable. Moreover, there would be no undue experimentation required to determine which seeds are encompassed by applicant's claimed invention. Accordingly, one skilled in the art could readily practice applicant's invention as claimed and inhibit defective germination or rosette formation of plant seeds.

Note under the CCPA's holding in *In re Borkowski*:

Specification need not contain a working example if the invention is otherwise disclosed in such a manner that one skilled in the art will be able to practice it without an undue amount of experimentation. *In re Borkowski* 164 USPQ 642 (CCPA 1970).

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It is submitted that one skilled in the art could easily expand upon the examples provided in applicant's specification and practice the claimed invention, including determining which plant seeds are suitable, without any undue experimentation.

Therefore, the specification is believed to meet the requirements of 35 U.S.C. §112, first paragraph.

On page 3 of the Office Action the Examiner has rejected claims 1-3 under 35 U.S.C. §112, second paragraph.

Under this rejection the Examiner has taken the position that the phrase "in a dark place" is "a relative term that can be defined as low light or no light and has not been clearly defined in applicant's specification."

Applicants note that the claims have been amended herein to add appropriate functional language to qualify the term "dark place" as being sufficiently dark to prevent germination thus making the reference to "dark place" definite in the claims (as it is also defined in the specification).

Also under this rejection the Examiner has noted that he has interpreted the term "immediately" as "commencing the step of drying when the soaking step is done."

Support for the term "immediately" can be found in the last two paragraphs on page 5 of applicant's specification where it is stated that "preferably the drying treatment itself is carried out as quickly as possible" and "the drying treatment is carried out in a manner described above right after leaving the seed to stand in highly watery condition."

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Use of the term "immediately" in the claims is believed to encompass the description on page

5.

It is submitted that the terms "in a dark place" and "immediately" satisfy the requirements of 35 U.S.C. §112, second paragraph.

Claim 1 stands rejected under 35 U.S.C. §102(b) as being anticipated by Romanian Patent No. RO 113935B to Badiu et al.

Claim 1 stands rejected under 35 U.S.C. §102(b) as being anticipated by Corbineau et al., *Effects of Priming on the Germination of Valerianella Olitoria Seeds in Relation with Temperature and Oxygen*, Acta Horticulturae, No. 267, pp 191-197 (1990).

Claim 1 stands rejected under 35 U.S.C. §102(b) as being anticipated to Coolbear et al., *An Evaluation of the Potential of Low Temperature Pre-Sowing Treatments of Tomato Seeds as Means of Improving Germination Performance*, Ann. appl. Biol. (1987), 110, pp. 185-194 (1987).

Claims 2 and 3 were rejected under 35 U.S.C. §103(a) as being unpatentable over Badiu et al. in view of Evans et al. *Starting Plants from Seeds*, NC State University, 1999, section on light.

Claims 2 and 3 were further rejected under 35 U.S.C. §103(a) as being unpatentable over Corbineau et al. in view of Evans et al.

Claim 1 stands rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,107,051 to Job et al. in view of Smith, *Seed Soaking Damage in Some Grain Legumes*, Journal of New Seeds, Vol 2(3) (2000).

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Claim 2 was rejected under 35 U.S.C. §103(a) as being unpatentable over Job et al. in view of Evans et al.

Claims 2 and 3 were further rejected under 35 U.S.C. §103(a) as being unpatentable over Coolbear et al. in view of Evans et al.

Inasmuch as pending claims 1 and 4 include the limitations from claims 2 and 3, the rejections of claim 1, based upon Badiu et al., Corbineau et al, Coolbear et al. or the combination of Job et al. in view of Smith or the combination of Corbineau et al. in view of Evans et al. and the rejection of claim 2 based upon Job et al. in view of Evans et al. are deemed moot, and it is understood that the Examiner did not feel these rejections were applicable to the combination of limitations that are now present in claims 1 and 4.

With regard to the rejection of claim Claims 2 and 3 based upon Badiu et al. in view of Evans et al. the Examiner has conceded that "Badiu et al. is silent on the plant seed being dried in sufficient light to cause the seed to germinate of the plant seed is dried in a dark place."

The Examiner has accordingly relied upon Evans as teaching that:

...light and darkness have an effect on germination depending on the plant species (Evans).

In combining the teachings of Badiu et al. and Evans et al. the Examiner takes the position that:

...it would have been obvious....through a combination routine laboratory tests and experiment and knowledge of the seeds species, to determine light or dark requirements for a desired effect and to control germination.

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Evans section on "Light" reads as follows:

Light - Can stimulate or inhibit seed germination of some species. Seeds that require light for germination include: ageratum, begonia, browallia, impatiens, lettuce, and petunia. Other plants germinate best in the dark. These include calendula, centaurea, annual phlox, and verbena. Some plants germinate in either light or dark conditions. Seed catalogs and seed packets often list germination and cultural information for particular plants. When sowing light-requiring seeds, sow them on the medium surface. Supplemental light can be provided by fluorescent fixtures suspended 6 to 12 inches above the medium for 16 hours a day.

First it is noted that the section on "Light" in Evans does not relate to any soaking or drying conditions and is therefore is not relevant to a process of treating seeds to prevent defective germination or rosette formation.

Further it is noted that Evans et al. is specifically directed to "Starting Plants from Seed" as the title indicates.

Evans et al. covers a list of parameters that effect seed germination, including water, temperature, oxygen, light, and media. With respect to light, Evans et al. teach that some seeds require light for germination, "[o]ther plants germinate best in the dark." And "[s]ome plants germinate in either light or dark conditions."

There is nothing in Evans et al. that relates to the effect of light or darkness prior to germinating seeds. Stated another way, there is nothing in Evans et al. that relates to the effect of light in pretreating seeds before they are planted.

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Accordingly, neither Badiu et al. nor Evans et al., alone or in combination, teach a method of preventing defective germination or rosette formation of a plant seed that involves soaking and drying plant seeds under dark conditions according to appellant's claimed invention.

Moreover, it seems like the Examiner position that:

...it would have been obvious....through a combination routine laboratory tests and experiment and knowledge of the seeds species, to determine light or dark requirements for a desired effect and to control germination.

requires obviousness to be based upon conducting tests and experiments and acquiring knowledge when the prior art does not even suggest or indicate that the control of light has any effect or benefit in treating seeds to prevent defective germination or rosette formation during a soaking or drying process.

While the undersigned is aware of patent case law that allows optimizing of a variable that causes a known effect, he is not aware of case law that allows for tests and experiment and knowledge to create a desired effect using a variable that is not known to be related to the desired effect. Neither Badiu et al. nor Evans et al. teach that darkness used during the soaking or subsequent drying of a seed prevents defective germination or rosette formation.

With regard to the rejection of claim Claims 2 and 3 based upon Corbineau et al. in view of Evans et al.

Under this rejection the Examiner concedes that "Corbineau et al. is silent on the plant seed being dried in sufficient light to cause the seed to germinate of the plant seed is dried in a dark place."

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The Examiner has accordingly relied upon Evans as teaching that:

...light and darkness have an effect on germination depending on the plant species (Evans).

In combining the teachings of Corbineau et al. and Evans et al. the Examiner takes the position that:

...it would have been obvious....through a combination routine laboratory tests and experiment and knowledge of the seeds species, to determine light or dark requirements for a desired effect and to control germination.

Corbineau et al. teaches a priming treatment in which "seeds were soaked in aerated deionized water during 40 hours at 20°C in darkness.

Applicant's claims limit the temperature of the highly watery condition to from 0° to 15°C.

Accordingly, the teaching of Corbineau et al. fall outside of applicant's claimed temperature range.

Corbineau et al. therefore cannot be relied upon as teaching or suggesting applicant's claimed invention with or without further reliance upon Evans.

Moreover, for the reasons stated above there is nothing in Evans et al. that relates to the effect of light or darkness prior to germinating seeds. Stated another way, there is nothing in Evans et al. that relates to the effect of light in pretreating seeds before they are planted.

Accordingly, neither Corbineau et al. nor Evans et al., alone or in combination, teach a method of preventing defective germination or rosette formation of a plant seed that involves soaking and drying plant seeds under dark conditions according to appellant's claimed invention.

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With regard to the rejection of claim Claims 2 and 3 based upon Coolbear et al. in view of Evans et al.

Under this rejection the Examiner has conceded that "Coolbear et al. is silent on the plant seed being dried in sufficient light to cause the seed to germinate of the plant seed is dried in a dark place."

The Examiner has accordingly relied upon Evans as teaching that:

...light and darkness have an effect on germination depending on the plant species (Evans).

In combining the teachings of Corbineau et al. and Evans et al. the Examiner takes the position that:

...it would have been obvious...through a combination routine laboratory tests and experiment and knowledge of the seeds species, to determine light or dark requirements for a desired effect and to control germination.

Coolbear et al. teaches a low temperature pre-sowing treatment in which seeds were allowed to imbibe distilled water at a constant 10°C in darkness.

It is important to note that Coolbear et al. teaches that some of the seeds were allowed to germinate during the pre-sowing treatment and shows a pre-sowing treatment range of 0 to 15 days in Fig. 1.

Thus, Coolbear does not teach preventing the seeds from germinating.

Moreover Coolbear et al. does not teach limiting the pre-sowing treatment to a period of time that inhibits defective germination or rosette formation.

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This is because Coolbear et al. is only interested in studying the affect of low temperature pre-sowing treatment on improving germination.

There is no mention in Coolbear et al. on inhibiting defective germination or rosette formation.

Accordingly, one would not be lead to a method of inhibiting defective germination or rosette formation from the teachings of Coolbear et al.

Coolbear et al. teach that the seeds are dried after the pre-sowing treatment in open Petri dishes at room temperature rather than in a dark place that is sufficiently dark to prevent exposure of the plant seed to an amount of light that is sufficient to cause the plant seed to germinate.

Evans et al. is specifically directed to "Starting Plants from Seed" as the title indicates. In this regard Evans teaches the combination of water, temperature, oxygen, light, and media to start plants from seed.

Note, there is no teaching in Evans et al. of applying any specific temperature, oxygen, light, or media to plant seeds while soaking or drying the seeds.

With specific respect to light, Evans et al. teach that some seeds require light for germination, "[o]ther plants germinate best in the dark." And "[s]ome plants germinate in either light or dark conditions."

It is clear that there is nothing in Evans et al. that relates to the effect of light or darkness prior to planting and germinating seeds. Stated another way, there is nothing in Evans et al. that relates to the effect of light in pretreating seeds before they are planted.

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Accordingly, neither Coolbear et al. nor Evans et al., alone or in combination, teach a method of preventing defective germination or rosette formation of a plant seed that involves soaking and drying plant seeds under dark conditions according to appellant's claimed invention.

Moreover, as noted above it seems like the Examiner position that:

...it would have been obvious....through a combination routine laboratory tests and experiment and knowledge of the seeds species, to determine light or dark requirements for a desired effect and to control germination.

requires obviousness to be based upon conducting tests and experiments and acquiring knowledge when the prior art does not even suggest or indicate that the control of light has any effect or benefit in treating seeds to prevent defective germination or rosette formation during a soaking or drying process.

The undersigned is under the impression that obviousness has to be based upon what a reference teaches to one skilled in the art and not upon what one could extract from a reference and use in a combination of a combination routine laboratory tests and experiment and knowledge to concoct a teaching from the reference.

Again, while the undersigned is aware of patent case law that allows optimizing of a variable that causes a known effect, he is not aware of case law that allows for tests and experiment and knowledge to create a desired effect using a variable that is not known to be related to the desired effect. Neither Coolbear et al. nor Evans et al. teach that darkness used during the soaking or subsequent drying of a seed prevents defective germination or rosette formation.

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The undersigned appreciates the Examiner's comments on the bottom of page 10 of the Office Action that the effects of light and darkness on seed germination have been studied extensively; however, the prior art does not teach the combination of soaking seeds in the dark together with drying seeds in the dark to inhibit or prevent defective germination or rosette formation.

Patentability can result and often does from a new combination of known elements.

Based upon the above distinctions between the prior art relied upon by the Examiner and the present invention, and the overall teachings of prior art, properly considered as a whole, it is respectfully submitted that the Examiner cannot rely upon the prior art as required under 35 U.S.C. §102 as anticipating applicant's claimed invention.

Moreover the Examiner cannot properly rely upon the prior art as required under 35 U.S.C. §103 to establish a *prima facie* case of obviousness of applicant's claimed invention.

It is, therefore, submitted that any reliance upon prior art would be improper inasmuch as the prior art does not remotely anticipate, teach, suggest or render obvious the present invention.

It is submitted that the claims, as now amended, and the discussion contained herein clearly show that the claimed invention is novel and neither anticipated nor obvious over the teachings of the prior art and the outstanding rejections of the claims should hence be withdrawn.

Therefore, reconsideration and withdrawal of the outstanding rejection of the claims and an early allowance of the claims is believed to be in order.


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It is believed that the above represents a complete response to the Official Action and reconsideration is requested.

If upon consideration of the above, the Examiner should feel that there remain outstanding issues in the present application that could be resolved, the Examiner is invited to contact applicant's patent counsel at the telephone number given below to discuss such issues.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 12-2136 and please credit any excess fees to such deposit account.

Respectfully submitted,


Michael S. Gzybowski
Reg. No. 32,816

BUTZEL LONG
350 South Main Street
Suite 300
Ann Arbor, Michigan 48104
(734) 995-3110

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